

WHAT IS CLAIMED IS:

1. Fluorescent glass containing at least 50 mol% of at least one kind of oxide selected from the group consisting of SiO_2 , GeO_2 , and P_2O_5 as a glass constituent of a region containing a Bi ion as a dopant.

2. Fluorescent glass according to claim 1, containing at least one kind of oxide selected from the group consisting of BaO , CaO , Na_2O , B_2O_3 , Ga_2O_3 , Ta_2O_5 , and Nb_2O_5 as a glass constituent.

3. Fluorescent glass according to claim 2, containing an oxide of an element adapted to become a trivalent positive ion as a codopant.

4. Fluorescent glass according to claim 3, containing Al_2O_3 as the codopant.

5. Fluorescent glass according to claim 4, wherein Al_2O_3 contained therein as the codopant has a concentration of at least 5 mol%.

6. Fluorescent glass according to claim 2, containing B_2O_3 without containing Al_2O_3 as a codopant.

7. Fluorescent glass according to claim 6, containing Ta_2O_5 as a codopant.

8. Fluorescent glass according to claim 1, exhibiting a fluorescence peak wavelength exceeding 1300 nm.

9. Fluorescent glass according to claim 1, exhibiting a fluorescence peak wavelength exceeding

1400 nm.

10. Fluorescent glass according to claim 1, exhibiting a B value of 0.3 or less as an index of alkalinity.

5 11. Fluorescent glass according to claim 10, containing an oxide of an element adapted to become a trivalent positive ion as a codopant.

12. A fluorescent crystal containing a codopant other than Al_2O_3 in a region containing a Bi ion as a
10 dopant.

13. A fluorescent glass ceramic containing a codopant other than Al_2O_3 in a region containing a Bi ion as a dopant.

14. An optical amplifier waveguide comprising
15 the fluorescent glass according to claim 1; the optical amplifier waveguide being adapted to guide pumping light and signal light, and optically amplify the signal light when supplied with the pumping light.

15. An optical amplifier module comprising:
20 the optical amplifier waveguide according to claim 14; and

pumping light supply means for supplying the amplifier waveguide with the pumping light.

16. An optical amplifier module according to
25 claim 15, wherein the pumping light has a center wavelength longer than 800 nm.

17. An optical amplifier module comprising:

first and second optical amplifier waveguides,
cascaded to each other on a signal light propagation
line, having respective compositions different from
each other, each being the optical amplifier waveguide
according to claim 14;

first pumping light supply means for supplying
the first optical amplifier waveguide with pumping
light; and

second pumping light supply means for supplying
the second optical amplifier waveguide with pumping
light.

18. An optical amplifier module according to
claim 17, wherein the first optical amplifier waveguide
contains Al_2O_3 ;

wherein the second optical amplifier waveguide
contains a codopant other than Al_2O_3 ; and

wherein the first and second optical amplifier
waveguides have respective fluorescence peak
wavelengths separated from each other by at least 70 nm.

19. An optical amplifier module comprising:

first and second optical amplifier waveguides
having respective compositions different from each
other, each being the optical amplifier waveguide
according to claim 14;

first pumping light supply means for supplying

the first optical amplifier waveguide with pumping light;

second pumping light supply means for supplying the second optical amplifier waveguide with pumping light;

optical dividing means for dividing input signal light into first and second wavelength regions, outputting the first wavelength region of signal light to the first optical amplifier waveguide, and outputting the second wavelength region of signal light to the second optical amplifier waveguide; and

optical combining means for combining the first wavelength region of signal light outputted from the first optical amplifier waveguide after being optically amplified thereby and the second waveguide of signal light outputted from the second optical amplifier waveguide after being optically amplified thereby, and outputting thus combined signal light.